



IN THE CLAIMS

Claims 1, 4, 9-11, and 13-15 are pending in this application. Please cancel claims 5, 8 and 16-18 without prejudice or disclaimer, amend claims 1, 4, 9-11, 13 and 15 as follows:

1. (Currently Amended) A computer system, comprising:

a plurality of virtual machines formed on a control program of a computer;
and

an I/O device connected to a PCI bus of said computer and shared among said plurality of virtual machines;

a single port disposed in said I/O device and connected to said PCI bus;

PCI connection allocating means for setting a state of logical connection between selected at most one of said plurality of virtual machines and said port at a time; and

I/O device switching means for updating said state of logical connection set by said PCI connection allocating means according to a control signal received from said selected virtual machine,

wherein said selected virtual machine changes its state of logical connection to said I/O device according to the setting by said PCI connection allocating means,

~~wherein said selected virtual machine is deactivated to said control program in response to occurrence of an error in said virtual machine, and said control program notifies a connection destination standby system server of said state of connection~~

in response to detection of occurrence of an error in said virtual machine, said virtual machine is deactivated, then connection to said I/O device then switched to a standby virtual machine, said standby virtual machine is set as an active virtual machine, and said deactivated virtual machine is repaired and set as a standby virtual machine.

2-3. (Canceled)

4. (Currently Amended) The computer system according to claim 1,

wherein said plurality of virtual machine comprises first and second virtual machines,

~~wherein said second virtual machine, when an error is detected in said first virtual machine, sends a predetermined control signal to said I/O device switching means and connects the port of said I/O device to said second virtual machine, and~~

~~wherein said control program activates said second virtual machine and lets said first virtual machine stand by~~

said first virtual machine sends to said control program a command to switch a state of logical connection to said I/O device, said first virtual machine sends to said control program a command to deactivate or activate virtual machines said second virtual machine, said control program capable of deactivating or activating a virtual machine with respect to said control program in response to said command being received,

wherein said control program includes a PCI connection allocating table, said PCI connection allocating table is changed so that connection with I/O device is switched to said second virtual machine according to a control signal received, in response to said PCI connection allocating table being changed, said control program generates an interruption signal, and in response to said interruption signal being received by said second virtual machine, said second virtual machine changes connection to said I/O device, and

wherein said first virtual machine is rebooted to reconstruct said first virtual machine as a standby machine and a CPU allocation rate of said first virtual machine is set to be low.

5-8. (Canceled)

9. (Currently Amended) An I/O device connected to a PCI bus of a computer, comprising:

a single port connected to said PCI bus;

signal generating means for generating an interruption signal used to change the state of logical connection of said port according to a control signal received from said computer; and

an operating system performing hot-add/remove an I/O device in response to an interruption signal running on a computer,

wherein said computer, when receiving said interruption signal, changes its state of logical connection to said port, and

wherein in response to detection of occurrence of an error in said virtual machine, said virtual machine is deactivated, then connection to said I/O device is switched to a standby virtual machine, said standby virtual machine is set as an active virtual machine, and said deactivated virtual machine is repaired and set as a standby virtual machine.

10. (Currently Amended) The I/O device according to claim 9,

~~wherein said computer includes first and second virtual machines formed therein,~~

wherein said signal generating means sends the interruption signal to said second virtual machine to change said state of logical connection of said port to said first virtual machine according to a control signal received from said first virtual machine.

11. (Currently Amended) The I/O device according to claim 9, further comprising an allocating means for setting said state of logical connection of said port,

wherein said signal generating means generates an interruption signal and updates said allocating means for setting said state of logical connection of said port,

wherein said first virtual machine sends to said control program a command to switch a state of logical connection to said I/O device, said first virtual machine sends to said control program a command to deactivate or activate virtual machines said second virtual machine, said control program capable of deactivating or activating a virtual machine with respect to said control program in response to said command being received,

wherein said control program includes a PCI connection allocating table, said PCI connection allocating table is changed so that connection with I/O device is switched to said second virtual machine according to a control signal received, in response to said PCI connection allocating table being changed, said control program generates an interruption signal, and in response to said interruption signal being received by said second virtual machine, said second virtual machine changes connection to said I/O device, and

wherein said first virtual machine is rebooted to reconstruct said first virtual machine as a standby machine and a CPU allocation rate of said first virtual machine is set to be low..

12. (Canceled)

13. (Currently Amended) A method for sharing an I/O device connected to a PCI bus of a computer among a plurality of virtual machines formed on a control program of said computer, comprising the steps of :

selecting at most one virtual machine among said plurality of virtual machines at a time;

enabling said I/O device to set a state of logical connection between said selected virtual machine and a single port of said I/O device connected to said PCI bus through said single port; [[and]]

changing said state of logical connection between said port and said selected virtual machine according to a control signal received from said selected virtual machine;

in response to detection of occurrence of an error in said virtual machine, deactivating said virtual machine; then,

switching connection to said I/O device to a standby virtual machine;

setting said standby virtual machine as an active virtual machine; and repairing deactivated virtual machine, and

setting the repaired deactivated virtual machine as a standby virtual machine,

wherein said computer includes first and second virtual machines formed therein.

14. (Original) The method according to claim 13,

wherein said step of changing said state of logical connection includes:

a step of changing said state of logical connection between said port and said selected virtual machine and generating an interruption to notify said selected virtual machine of a change of said state of logical connection of said I/O device; and

a step of enabling said selected virtual machine that receives said interruption to change said state of logical connection to said I/O device according to said setting of said state of logical connection.

15. (Currently Amended) The method according to claim 13,

wherein said step of changing said state of logical connection, when detecting error occurrence in any of said plurality of virtual machines, updates an allocation table for setting said state of logical connection between said port and each virtual machine, lets said error-detected virtual machine stand by and activate another virtual machine,

said first virtual machine sends to said control program a command to switch a state of logical connection to said I/O device, said first virtual machine sends to said control program a command to deactivate or activate virtual machines said second virtual machine, said control program capable of deactivating or activating a virtual machine with respect to said control program in response to said command being received,

wherein said control program includes a PCI connection allocating table, said PCI connection allocating table is changed so that connection with I/O device is switched to said second virtual machine according to a control signal received, in response to said PCI connection allocating table being changed, said control program generates an interruption signal, and in response to said interruption signal being received by said second virtual machine, said second virtual machine changes connection to said I/O device, and

wherein said first virtual machine is rebooted to reconstruct said first virtual machine as a standby machine and a CPU allocation rate of said first virtual machine is set to be low.

16-18. (Canceled)